

Clean Water

starts with you

The DNR tests waters throughout Iowa to make sure they are meeting state water quality standards. Those standards are in place to protect drinking water, aquatic life and recreational uses, like swimming. When a stream or lake doesn't meet those standards, the stream or lake is placed on the state's impaired waters list. The DNR then creates a plan which outlines ways Iowans can help improve the water quality in their community's lakes and streams.

DNR needs your input

Every Iowan needs the help of their fellow citizens and watershed groups to improve water quality in their community. If you or your group would like to meet with a DNR staff member to discuss water quality, please contact Chris Van Gorp at (515) 281-4791 or Chris.VanGorp@dnr.state.ia.us



For more information on water quality improvement plans, please visit www.iowadnr.gov/water/watershed/

McCloud Run

Pollutant: *Heat*

Pollution Sources: *Natural solar energy and paved urban areas*

McCloud Run needs your help. As you'll read below, the DNR has developed a plan which outlines the urban trout stream's problems and possible solutions.

But it's up to you to make sure those solutions are put into effect. A healthier McCloud Run depends on you.

What's wrong with McCloud Run?

In August 2001, 184 trout, along with other fish, were found dead along a 1.5-mile stretch of McCloud Run. These fish died as the result of heat shock when a sudden rise in water temperature stressed the fish.

Trout require relatively cold and clean water to survive and cannot tolerate

rapid changes in stream temperatures. On the day of the fish kill, the water temperature in McCloud Run increased 19 degrees in just one hour.

Monitoring in the stream shows that the temperature continues to be affected by hot runoff from rainwater during the summer. It is common to see documented spikes of 10-15 degrees per hour.

What is causing the problem?

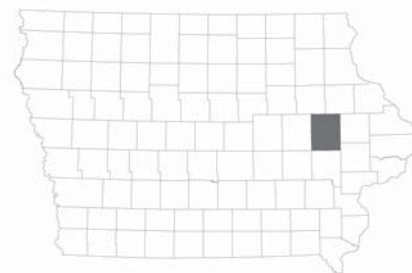
Heat naturally enters the stream from the sun's rays. However, when summer temperatures reach extreme highs, paved or unnatural surfaces (such as parking lots, buildings, and roofs) collect and retain heat.

Rain events can then wash this heat into the stream, having a dramatic effect on stream temperatures. McCloud Run is located in a highly urbanized environment with lots of



Left: A rain garden catches excess stormwater runoff and filters out pollutants before the runoff can reach McCloud Run.

Photo courtesy NRCS.



paved surfaces close to the stream. Storm sewers and gutters deliver storm-water runoff to the stream quickly, causing rapid increases in water temperature.

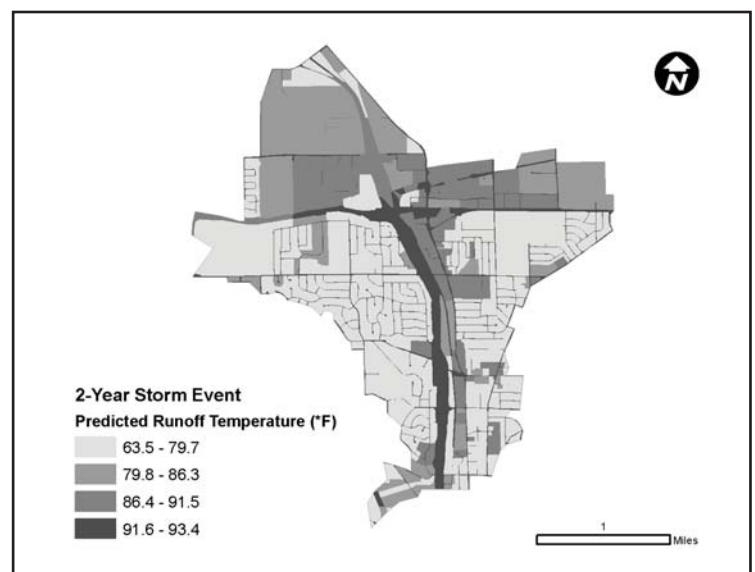
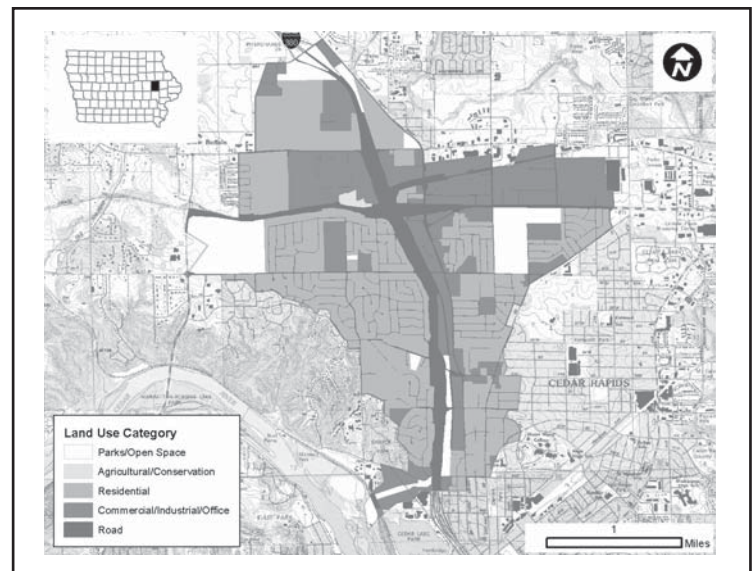
What can be done to improve McCloud Run?

The Iowa DNR has developed a water quality improvement plan (also known as a TMDL, or Total Maximum Daily Load) that outlines a plan for McCloud Run.

The plan defines the maximum amount of heat that McCloud Run can tolerate and still support its designated uses.

It also provides suggestions for future monitoring in the stream and activities that can help the situation.

For that to happen, active citizen involvement from the local community members and cooperation with city, county, and state governments are needed. Your input and comments are important as we collectively work towards improving the situation in McCloud Run for future generations.



Upper right: Land use in the McCloud Run watershed. Different land uses in a watershed can lead to different contributions of stormwater runoff and pollution.

Middle right: Predicted temperatures of runoff water. Trout need relatively cool water to survive, and warm runoff water can lead to heat shock, killing fish.

Lower right: The McCloud Run watershed. A watershed is an area of land that drains into a body of water. In this case, all land shaded in gray drains into McCloud Run.

